

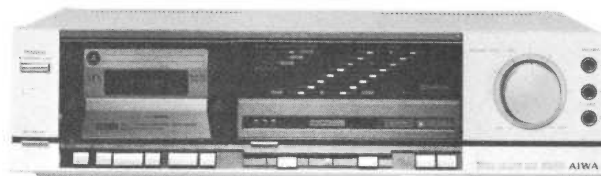
36

# SERVICE MANUAL

## MODEL NO.

# AD-3250

STEREO CASSETTE DECK



T.C. Corp  
10 North Main St  
Wharton NJ 07885  
www.servicemanuals.net


Code No. 04-325-000-95

## TYPE. H, HU, U, C, E, K, G, Z

DATE OF ISSUE 8/1982

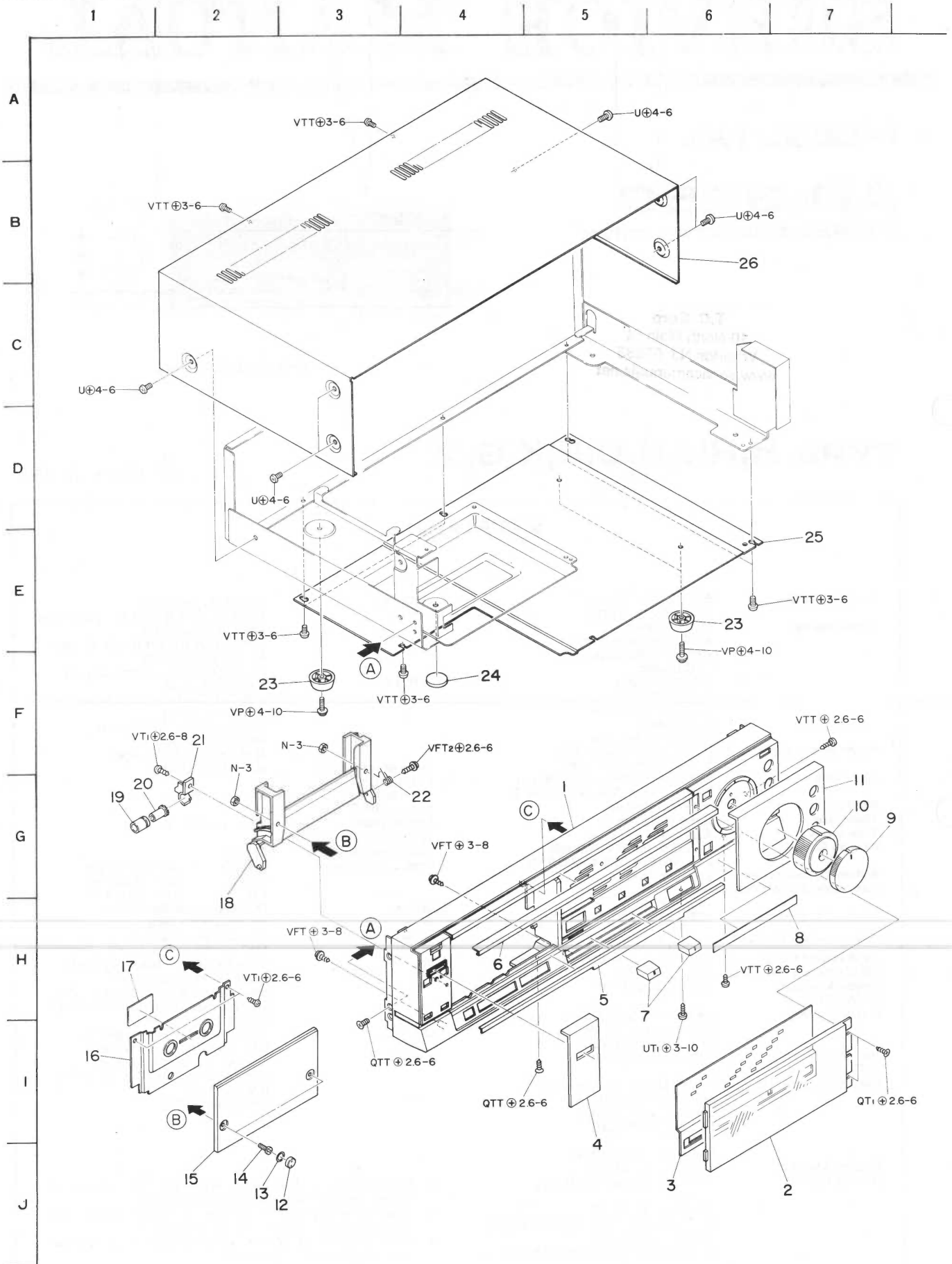
### SPECIFICATIONS

<b>Semiconductors:</b>	5 ICs, 32 transistors, 14 diodes, 22 LED's	(WTD-A)	More than 45/52 dB (METAL, DOLBY NR B-type/C-type)
<b>Power supply:</b>	H, HU models AC 120V/220V/240V switchable 50/60 Hz U, C models AC 120V, 60Hz E, Z models AC 220V, 50/60 Hz K, G models AC 240V, 50/60 Hz	(WTD-A)	More than 50/55 dB (CrO <sub>2</sub> , DOLBY NR B-type/C-type) More than 45/52 dB (LH, DOLBY NR B-type/C-type) More than 64 dB (METAL, DOLBY NR C-type) More than 64 dB (CrO <sub>2</sub> , DOLBY NR C-type) More than 62 dB (LH, DOLBY NR C-type) More than 30 dB
<b>Power consumption:</b>	H, HU, U, C models 13W E, K, G, Z models 14W	<b>Channel separation:</b> (1 kHz, 0VU)	More than 60 dB
<b>Dimensions:</b>	420(W) x 110(H) x 280 (D) mm [16-1/2" x 4-3/8" x 11-1/4"]	<b>Cross talk:</b> (1 kHz, 0VU)	More than 60 dB
<b>Weight:</b>	4.2 kg (9.25 lbs.)	<b>Erasing ratio:</b> (135 Hz, 0VU + 10 dB)	More than 57 dB
<b>Track type:</b>	4 tracks 2 channel	<b>Bias frequency:</b>	85 kHz
<b>Tape speed:</b>	4.8 cm/s (1-7/8 ips)	<b>Frequency response:</b>	METAL 20 ~ 18,000 Hz CrO <sub>2</sub> 20 ~ 17,000 Hz LH 20 ~ 16,000 Hz
<b>Wow an flutter:</b>	Less than 0.028% (WRMS) According to DIN 45500 0.1%	<b>Motor:</b>	DC Servomotor for capstan DC motor for reels
<b>Automatic stop system:</b>	Full auto stop	<b>Head:</b>	DX head (for Rec/Pb)
<b>Automatic shut-off action time:</b>	Less than 5s.	<b>Inputs</b>	MIC maximum input sensitivity: 0.3mV (200Ω - 10kΩ matched) LINE IN maximum input sensitivity: 50mV (more than 50kΩ) DIN max sensitivity (Z model only): 0.1mV/kΩ (3.3kΩ)
<b>Pinch roller pressure:</b>	125 ± 15 g (1.225 ± 0.147 N)	<b>Outputs</b>	LINE OUT standard output level: 0.55 V (0 VU); suitable load impedance: more than 50kΩ; DIN standard level (Z model only): 0.55 V (0 VU) Headphones: 8Ω
<b>Take-up torque:</b>	35 <sup>+15</sup> - 5 g-cm (0.343 <sup>+0.147</sup> - 0.049 mN · m)		
<b>FF &amp; rewind torque:</b>	110 ± 20 g-cm (1.078 ± 0.196 mN-m)		
<b>FF &amp; rewind time:</b>	90 ± 15s. (C-60)		
<b>Playback output:</b> (TTA-161)	490 ± 50mV (LINE)		
<b>Playback noise:</b>	Less than 1.2mV (CrO <sub>2</sub> ) Less than 1.2mV (METAL) Less than 2.3mV (LH) OVU ± 1.5dB (LINE)		
<b>Rec./PB output:</b> (TTA-119G)			
<b>Rec./Pb distortion:</b>	H, HU, U, C, E, K, G models Less than 2.5% (METAL) Less than 2.0% (CrO <sub>2</sub> ) Less than 1.5% (LH) Z model Less than 3% (CrO <sub>2</sub> ) More than 42/46 dB (METAL, DOLBY NR B-type OFF/ON) More than 42/46 dB (CrO <sub>2</sub> , DOLBY NR B-type OFF/ON) More than 41/46 dB (LH, DOLBY NR B-type OFF/ON)		
<b>Rec./Pb SN ratio:</b> (Unweighted)			

- Specifications and external appearance are subject to change without due to product improvement.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- Dolby and the  symbol are trademarks of Dolby Laboratories Licensing Corporation.

# AIWA<sup>®</sup>

EXPLODED VIEW-1

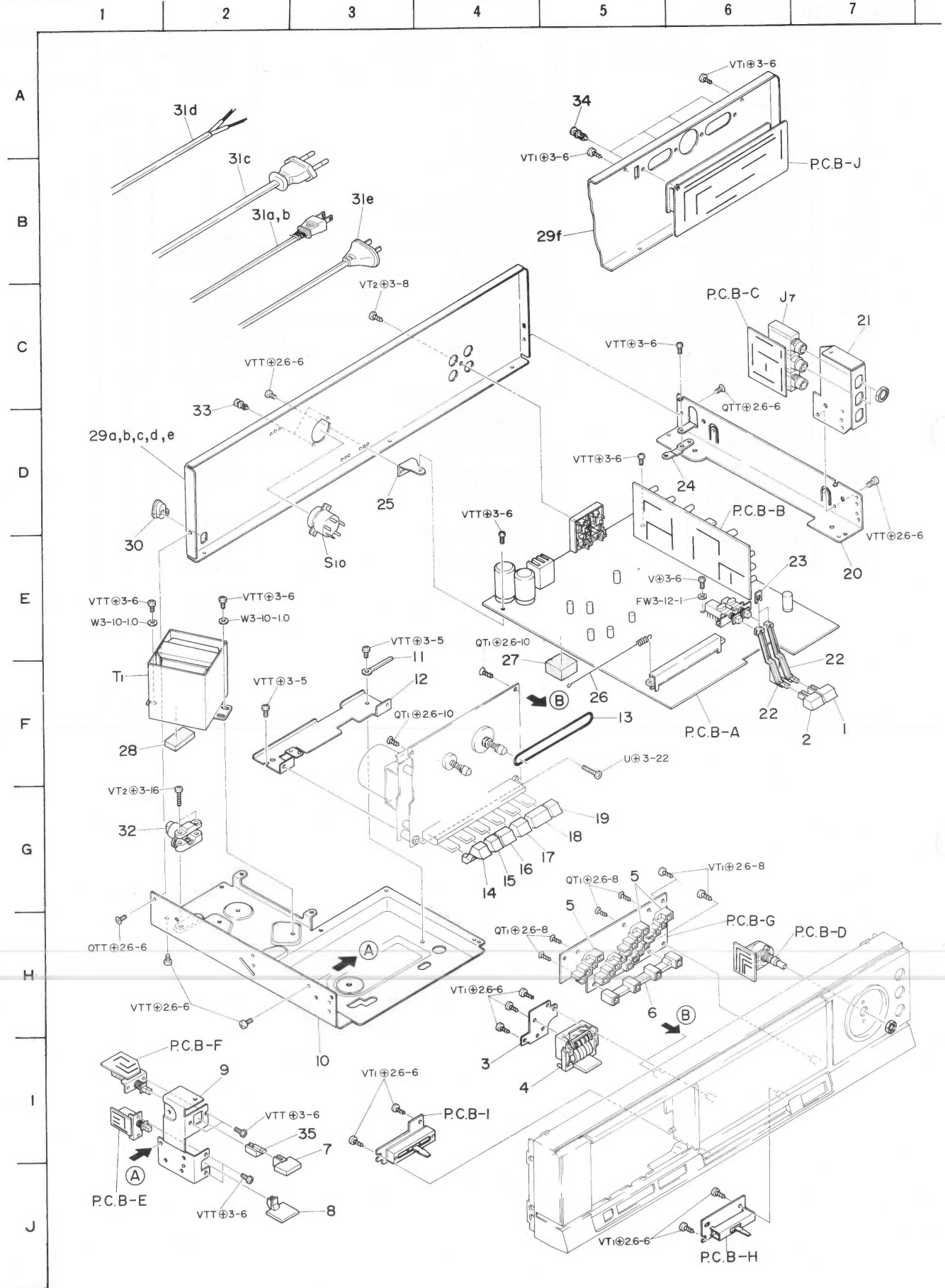


## PARTS LIST

## MECHANICAL PARTS

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-185-001-21		Cabinet, Front	*	1
1-2	82-185-004-01		Window, Meter	*	1
1-3	82-185-015-01		Plate, Meter	*	1
1-4	82-185-002-01		Panel, Front A	*	1
1-5	82-185-016-01		Control plate	*	1
1-6	82-185-017-01		Plate, Top	*	1
1-7	82-185-218-01		Slide knob, BIAS	*	2
1-8	82-185-025-01		Sheet, BIAS insulation	*	1
1-9	82-176-009-01		Knob, REC A2	AD-3100	1
1-10	82-175-029-01		Knob, REC B	AD-3500	1
1-11	82-185-003-11		Panel, Front B	*	1
1-12	82-175-010-01		Cap	AD-3500	2
1-13	82-176-215-01		Adhesive sheet 7φ	AD-3100	2
1-14	82-175-213-01		Screw, 3-6.5	AD-3500	2
1-15	82-176-019-01		Window, Cassette	AD-3100	1
1-16	82-175-033-01		Cassette plate	AD-3500	1
1-17	82-185-029-01		Label, Tape indication	*	1
1-18	82-185-028-01		Cassette box ass'y A	*	1
1-19	82-185-212-11		Oil-dump bearing	*	1
1-20	82-534-264-01		Gear, Oil-dump		1
1-21	82-175-210-11		Holder, Oil-dump	AD-3500	1
1-22	82-185-213-01		T-spring, Eject	*	1
1-23	87-085-161-01		Foot		3
1-24	82-168-025-01		Rubber foot	AD-3600	1
1-25	82-168-018-11		Cabinet, Bottom	AD-3600	1
1-26	82-175-009-01		Cabinet, Steel	AD-3500	1

EXPLODED VIEW-2

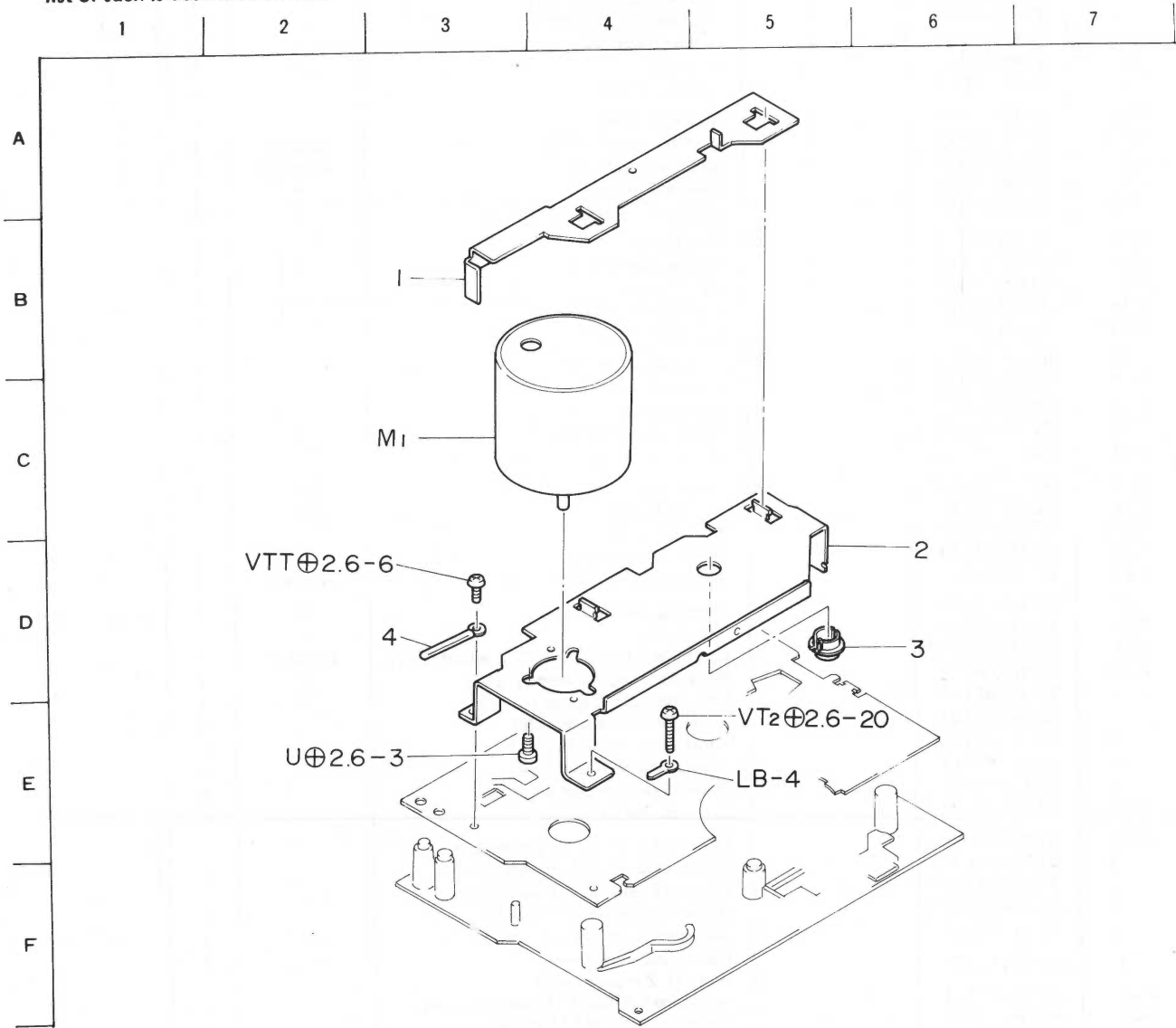


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
2-1	82-185-013-01		Push-button, DOLBY R	*	1
2-2	82-185-012-01		Push-button, DOLBY L	*	1
2-3	82-185-202-01		Holder, Counter	*	1
2-4	87-040-146-11		Counter		1
2-5	82-185-205-01		Guide, LED A	*	3
2-6	82-185-206-01		Guide, LED B	*	1
2-7	84-120-015-01		Push-button, POWER	AP-D60	1
2-8	82-175-024-11		Knob, REC/MUTE	AD-3500	1
2-9	82-185-204-01		Holder, POWER	*	1
2-10	82-185-211-01		Chassis A <sub>2</sub> , Amp	*	1
2-11	87-138-039-01		Wire binder		1
2-12	82-185-216-01		Holder, Mechanism	*	1
2-13	82-538-210-01		Belt, Counter		1
2-14	82-185-007-11		Push-button, REC	*	1
2-15	82-185-011-11		Push-button, REW	*	1
2-16	82-185-006-01		Push-button, PLAY	*	1
2-17	82-185-010-11		Push-button, FF	*	1
2-18	82-185-008-11		Push-button, STOP	*	1
2-19	82-085-009-11		Push-button, PAUSE	*	1
2-20	82-185-214-01		Chassis B <sub>2</sub> , Amp	*	1
2-21	82-185-201-01		Holder, MIC jack	*	1
2-22	82-185-203-01		Rod A, DOLBY	*	2
2-23	82-385-383-01		Rod, Stopper		2
2-24	82-185-215-01		Holder, Circuit board	*	1
2-25	82-168-213-01		Holder, Circuit board	AD-3600	1
2-26	82-185-219-01		E-spring, REC	*	1
2-27	82-735-209-11		G cushion		1
2-28	82-168-232-01		U cushion (H, HU, E, K, G, Z models only)	AD-3600	1
2-29a	82-185-005-01		Panel, Rear (H, HU models only)	*	1
b	82-185-031-01		Panel, Rear (U, C models only)	*	1
c	82-185-022-01		Panel, Rear (E model only)	*	1
d	82-185-023-01		Panel, Rear (K model only)	*	1
e	82-185-027-01		Panel, Rear (G model only)	*	1
f	82-185-026-01		Panel, Rear (Z model only)	*	1
2-30	87-085-165-01		Cord bushing (H, HU, U, C models only)		1
2-31a	87-034-826-01		AC power cord (H, HU models only)		1
b	87-034-951-01		AC power cord (U, C models only)		1
c	87-034-877-01		AC power cord (E, Z models only)		1
d	87-034-872-01		AC power cord (K model only)		1
e	87-034-892-01		AC power cord (G model only)		1
2-32	87-085-166-01		Holder, AC power cord (E, K, G, Z models only)		1
2-33	87-085-090-01		Nylon rivet 3-6.5 (H, HU models only)		2
2-34	87-084-077-01		Nylon rivet 3.5-4.5 (Z model only)		4
2-35	82-176-206-01		Rod, POWER		1

**EXPLODED VIEW-3**

As the MD-3 Mechanism is adopted in this model, the exploded view is omitted --- See the supplement MD-3 Mechanism manual in case of repair and parts order.

The following is the exploded view of the exclusive mechanism and the motor attachments. The part-code list of such is described as well.



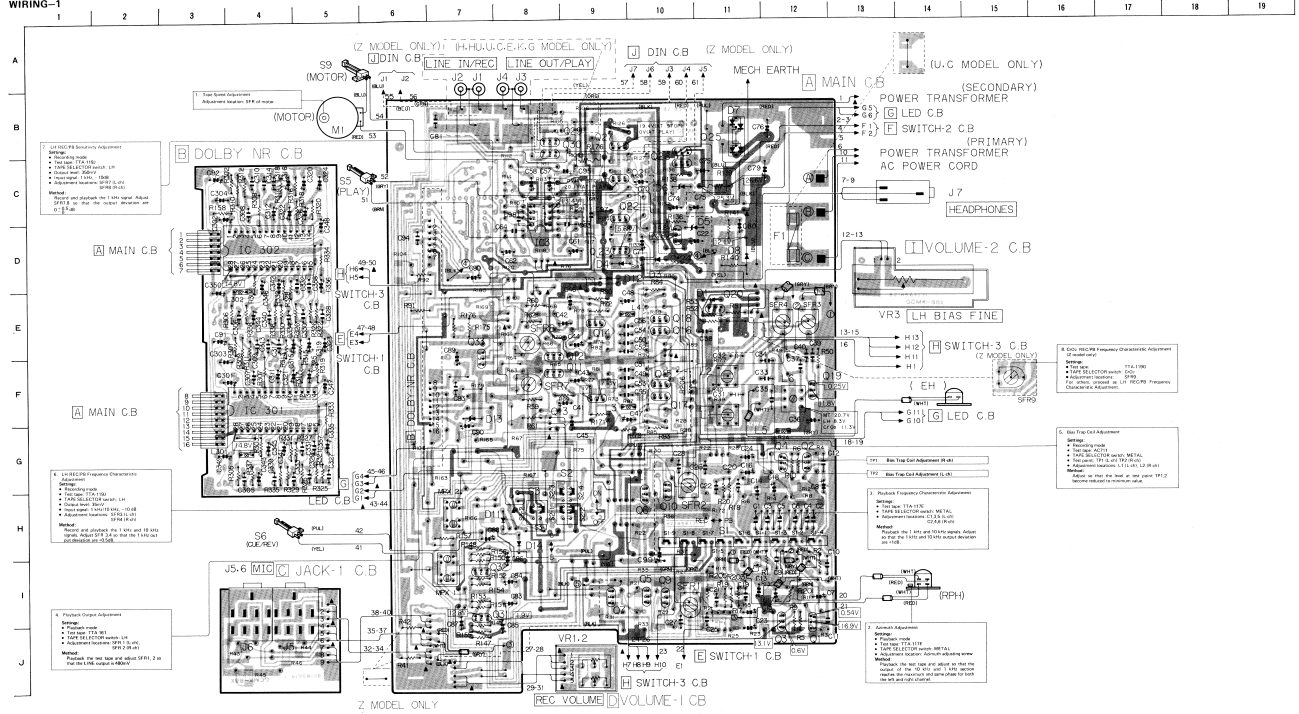
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
3-1	82-175-220-21		Slide plate ass'y	AD-3500	1
3-2	82-585-281-31		Holder, Motor		1
3-3	82-585-326-11		Thrust bearing B		1
3-4	87-038-039-01		Wire binder		1

## ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1a	82-185-854-01		Printed indiv., Packing (H, HU, C, E, K, G, Z models only)	*	1
1b	82-185-857-01		Printed indiv., Packing (U model only)	*	1
2a	82-185-852-01		Cushion L, Printed indiv. (H, HU, C, E, K, G, Z models only)	*	1
2b	82-176-852-01		Cushion L, Printed indiv. (U model only)		1
3a	82-185-853-01		Cushion R, Printed indiv. (H, HU, C, E, K, G, Z models only)	*	1
3b	82-176-853-01		Cushion R, Printed indiv. (U model only)		1
4	87-051-135-11		Poly-vinyl sack		1
5	87-056-512-01		Sheel, Cassette guide		1
6	87-056-628-01		Poly-vinyl sack		1
7	82-185-903-11		Instructions booklet	*	1
8	87-051-171-11		Poly-vinyl sack		1
9	87-056-008-11		Label, AC power cord (K model only)		1
10	87-056-009-51		Distributors list (H, C, E, K, G, Z models only)		1
11	87-056-045-01		Guarantee card (HU, U models only)		1
12	87-056-050-11		Safety instructions (HU, U models only)		1
13	87-056-057-01		Service station list (HU, U models only)		1
14	87-056-059-01		Guarantee card (G model only)		1
15	87-032-845-01		Siemens plug (H, HU modes only)		1
16	87-034-971-01		Connection cord CW-252BSK		1
17	87-056-013-01		Guarantee card (C model only)		1

AIWA  
 1875 W. 10th St.  
 St. Paul, MN 55108  
 (612) 291-1111

WIRING-1



1. Tone Control Adjustment  
 Adjustment location: 2P-R of motor

2. DC Servo Motor Adjustment  
 Range: 0.5V  
 Method: Refer to the manual for the correct adjustment.

3. Frequency Characteristic Adjustment  
 Range: 100 Hz to 10 kHz  
 Method: Refer to the manual for the correct adjustment.

4. DC Servo Motor Adjustment  
 Range: 0.5V  
 Method: Refer to the manual for the correct adjustment.

5. Bias Trim Adjustment  
 Range: 0.5V  
 Method: Refer to the manual for the correct adjustment.

6. Frequency Characteristic Adjustment  
 Range: 100 Hz to 10 kHz  
 Method: Refer to the manual for the correct adjustment.

7. Volume Adjustment  
 Range: 0.5V  
 Method: Refer to the manual for the correct adjustment.



AD-3150  
H, HU, U, C, E, K, G, Z

NOTES (1) ■ B-1 Pattern ■ Component side pattern ■ Others pattern  
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.  
 An asterisk (\*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

AD-3150  
H, HU, U, C, E, K, G, Z

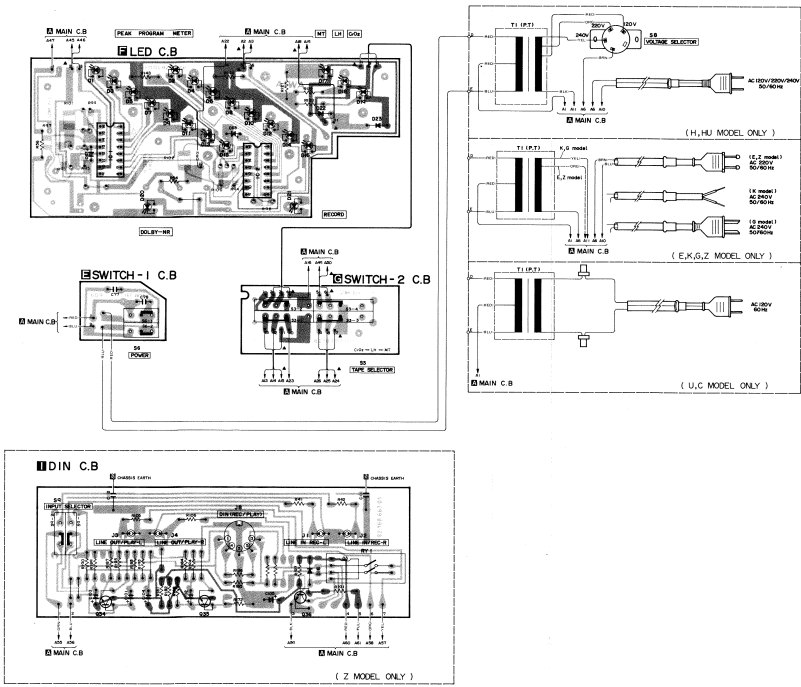
AD-3150  
H, HU, U, C, E, K, G, Z

AIWA

WIRING-2

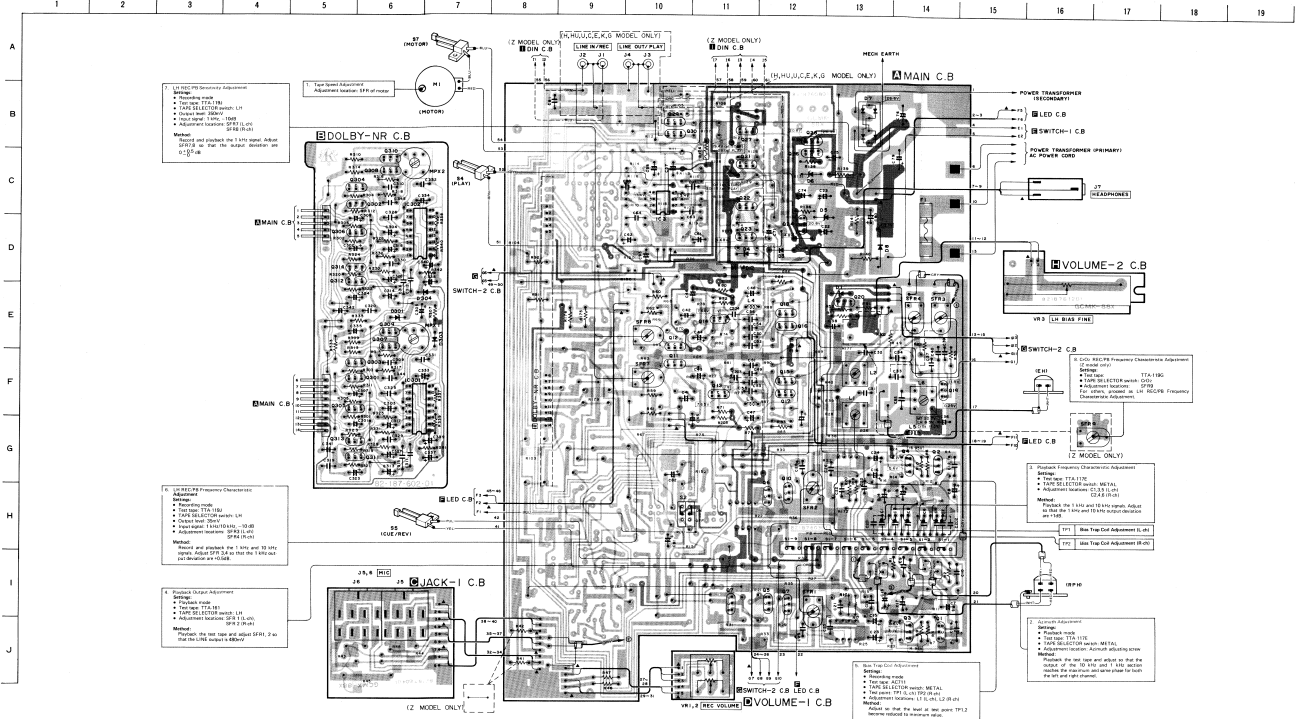
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
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A  
B  
C  
D  
E  
F  
G  
H  
I  
J



WIRING-1

NOTES (1) [Pattern] B(+), [Pattern] Component side pattern, [Pattern] Others pattern  
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.  
 An asterisk (\*) indicates that the value was measured with a vacuum-tube voltmeter during recording.



**ELECTRICAL MAIN PARTS LIST**

Symbol No.	Part No.	Description
<b>&lt; MAIN CIRCUIT BOARD SECTION &gt;</b>		
PCBA	*	Main circuit board
IC3	87027-79-01	IC, N.M. 4556D
Q1,2	88-324-99-01	Transistor, 2SC2940 (BL)
Q1,4,5	88-326-34-01	Transistor, 2SC26345
Q7,8		
Q9,10,11		
Q12,13,14		
Q15,16,17		
Q18,21,22		
Q23,21,22		
Q23		
O19	88-313-846-01	Transistor, 2SC1308 (R)
Q20,29,30	88-320-01-01	Transistor, 2SC2001 (K)
Q24	88-313-833-01	Transistor, 2SC1383 (R)
Q25	88-408-884-51	Transistor, 2SC580Y (GR)
Q26	88-309-456-01	Transistor, 2SC245L (P)
Q27	88-103-325-01	Transistor, 2SA733K
O14,11	87-027-09-01	Diode, 1S1555
D5	87-027-44-01	Zener diode, HZ15-3L
O6	87-027-66-01	Zener diode, HZ22-1L
D7	87-027-37-01	Diode, 18B84T
O8	87-027-53-01	Diode, 5S2778 (LB)
D13	87-027-32-01	Zener diode, HZ6B1L
L1,2	87-005-12-01	Coil, 22mH
L3,4	87-003-09-01	Coil, 4.7mH
L5	82-401-661-01	Choke coil, 600uH
L6	82-176-628-01	OSC coil
WPX1,2	87-020-08-01	Lowpass filter
J1,2,3,4	87-949-05-01	Pin jack, 4P (LINE IN/REC LINE OUT/PLAY)
S1	82-185-606-01	Slide switch (REC/PL)
S3,3	82-185-680-01	Push-switch (001L/BL/WH/B/C)
S7,1	87-035-186-01	Fuse, "T" 125mA (H,HU,E,K,G,2 model only)
S8	87-088-007-01	Fuse blade, "T" 125mA (H,HU,E,K,G model only)
S9	87-033-147-01	Fuse clamp (H,HU,E,K,G,2 model only)
SFR1,2	87-021-969-01	Semi-fixed resistor, 50kΩ-B
SFR3,4	87-021-70-01	Semi-fixed resistor, 100kΩ-B
SFR7,8	87-021-968-01	Semi-fixed resistor, 20kΩ-B
SFR9	82-687-634-01	Semi-fixed resistor, 100Ω-B (I2 model only)
R1	82-304-743-01	1W resistor < Resistor >
R13,19	87-029-089-01	4.7Ω 1/4W Fuse resistor
R17,8	87-029-023-01	67Ω 1/4W Fuse resistor < Capacitors >
C7,8	87-015-59-01	10uF 16V Electrolytic LL
C17,18	86-002-457-14	100uF 3V Tantalum
C1,3,2	87-014-037-01	150pF PP
C2	87-014-126-01	1500pF 50V PP
C4,1,2	87-015-267-01	0.15uF 10V Aluminum solid
C11,12	87-018-032-01	100pF Ceramic
C1,2,3,4	87-018-034-01	150pF Ceramic
C5,6	87-018-038-01	330pF Ceramic
C9,10	87-018-044-01	1000pF Ceramic
C6,8,4	87-018-047-01	0.01uF 16V Ceramic
<b>&lt; DOLBY NR CIRCUIT BOARD SECTION &gt;</b>		
PCB-B	82-184-620-11	Dolby NR circuit board
IC201,302	87-027-862-01	IC, HA1202B
L301,302	87-005-150-01	Coil, 36mH
	87-949-117-01	Fuse, 2P
	87-949-119-01	Fuse, 9P
C19,20,21,22,37,38	87-015-367-01	0.15uF 10V Aluminum solid

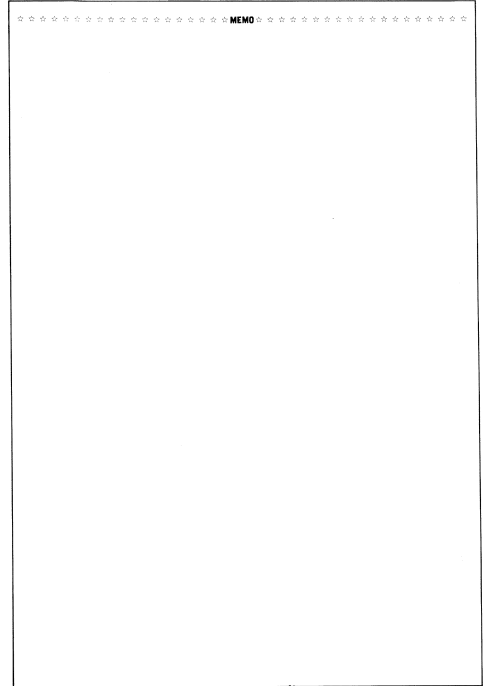
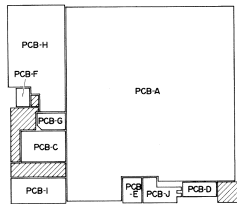
Symbol No.	Part No.	Description
<b>&lt; JACK-1 CIRCUIT BOARD SECTION &gt;</b>		
PCB-C	*	Jack-1 circuit board
J5,6	87-049-073-01	Jack 6.3u (HICI)
<b>&lt; VOLUME-1 CIRCUIT BOARD SECTION &gt;</b>		
PCB-D	*	Volume-1 circuit board
VR1,2	82-175-649-01	Volume, 30kΩ-A IREC (VOLUME)
<b>&lt; SWITCH-1 CIRCUIT BOARD SECTION &gt;</b>		
PCB-E	*	Switch-1 circuit board
S5	82-175-626-01	Push switch (REC. MUTE)
<b>&lt; SWITCH-2 CIRCUIT BOARD SECTION &gt;</b>		
PCB-F	*	Switch-2 circuit board
S7	87-031-666-01	Push-switch (POWER) (H,HU,E,K,G,2 model only)
S7	82-185-609-01	Push-switch (POWER) (U,C model only)
<b>&lt; LED CIRCUIT BOARD SECTION &gt;</b>		
PCB-G	*	LED circuit board
IC1,2	87-017-879-01	IC, ANK882
O1,2,3,4	87-027-543-01	LED, LN217BP
S,6,17		
D7,8,9	87-027-543-01	LED, LN217GP
L10,11,12,13,14,15,16		
D19	87-027-611-01	LED, LN417YP
D20,22	87-027-772-01	LED, CL-99PM
D21	87-027-775-01	LED, GL-9NCG
D23,24	87-027-099-01	Diode, 1S1555
C27,68	87-015-682-01	22uF 16V Electrolytic
<b>&lt; SWITCH-3 CIRCUIT BOARD SECTION &gt;</b>		
PCB-H	*	Switch-3 circuit board
S4	82-185-607-01	Slide switch (TAPES SELECTOR)
<b>&lt; VOLUME-2 CIRCUIT BOARD SECTION &gt;</b>		
PCB-I	*	Volume-2 circuit board
VR-3	82-185-612-01	Volume, 500Ω-B (LH BIAS FINE)
<b>&lt; DIN CIRCUIT BOARD SECTION &gt; "Z" MODEL ONLY</b>		
PCB-J	82-185-662-01	DIN circuit board
Q34,35,36	89-309-456-01	Transistor, 2SC545L (P)
D18	87-023-091-01	Diode, 1S1555
D19	87-038-054-01	Jack plate 6uV (W/switch)
S,11	87-023-091-01	LINE IN/REC, LINE OUT/PLAY
RY1	87-045-152-01	DIN, INPUT SELECTOR Lead relay, L24M
<b>&lt; MISCELLANEOUS &gt;</b>		
T1	82-185-602-01	Power transformer (H,HU model only)
T1	82-185-603-01	Power transformer (U,C model only)
T1	82-185-604-01	Power transformer (E,Z model only)
T1	82-185-605-01	Power transformer (K,G model only)
J7	87-049-083-01	Jack, 6.3u (HEADPHONES)
RPH	87-046-200-01	REC/PL head
EH	87-046-196-01	Erase head
M1	87-045-135-01	Motor, DC-EG
	87-034-826-01	AC power cord (H,HU model only)
	87-034-951-01	AC power cord (U,C model only)
	87-034-871-01	AC power cord (E,Z model only)
	87-034-872-01	AC power cord (K,G model only)

Symbol No.	Part No.	Description
87-034-892-01		AC power cord (G model only)
87-085-165-01		Cord bushing (H,HU,U,C model only)
87-085-166-01		Holder, AC power cord (U,K,G,Z model only)
87-031-615-01	55,9	Leaf switch (PLAY, MOTOR)
87-031-948-01	S6	Leaf switch (CUE/REVI)
87-031-086-01	S10	Rotary switch (VOLTAGE SELECTOR) (H,HU model only)

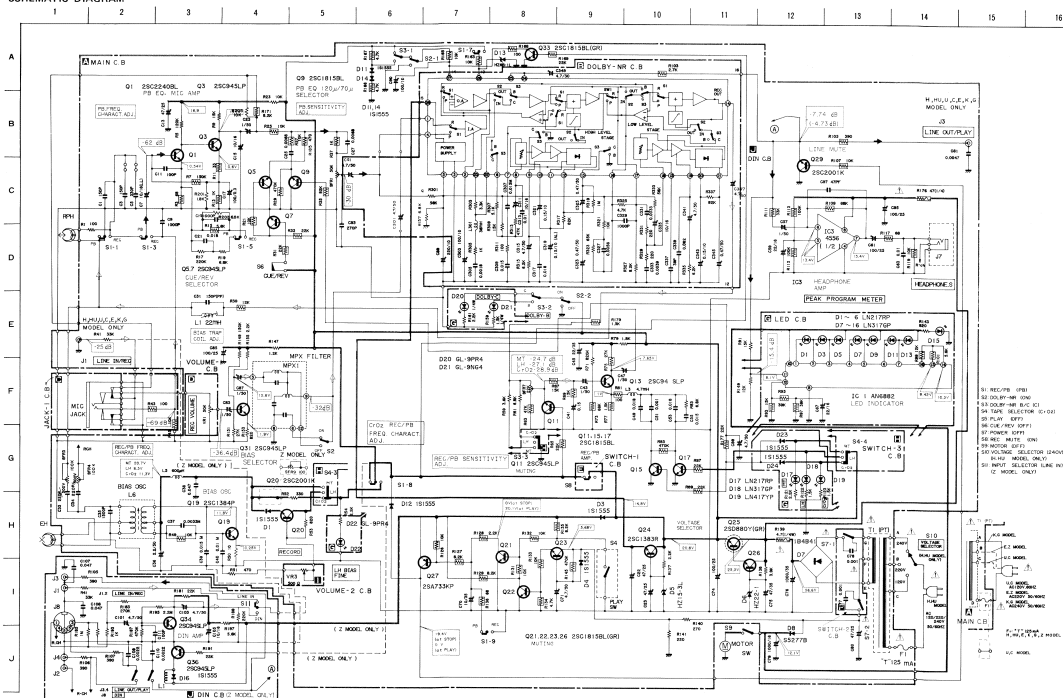
**Note:** Combination Circuit Board  
The parts on the electrical parts list which are indicated by an asterisk (\*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

**Safety component symbol**  
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

Combination circuit board 82-185-613-11



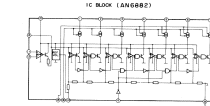
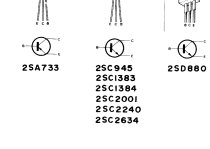
SCHEMATIC DIAGRAM



- NOTES:
- 1) B 111 power supply
  - 2) Signal path
  - 3) Resistor path
  - 4) The voltage is the reference value measured with a tester (20 k-ohm/V DC) when there are no signals, but (\*) is with recording.
  - 5) An asterisk (\*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
  - 6) Resistors with no designation have a rated power of 1/4W and a tolerance of 15%.
  - 7) Capacitors with no designation have a dielectric strength of less than 500V.
  - 8) The only capacitor tolerances indicated are ±2%, 10%, 15%, 20% and 50% (K).
  - 9) Ceramic capacitor symbols:
    - H— High dielectric constant system (YV, YP, YZ)
    - S— Semiconductor ceramic
  - 10) Explanation of symbols:
    - ⊖ Mylar capacitor
    - ⊕ Aluminum solid capacitor
    - ⊙ Polypropylene film capacitor
    - ⊖ Low leakage capacitor
    - ⊕ Tantalum capacitor
    - P— Printed resistor
    - F— Fuse resistor
  - 11) Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

This schematic diagram is subject to change without notice in the interests of improved performance.



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